

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT  
APPLICATION

Inventor(s): FODOR ET AL  
 Appln. No.: 08 | 670,118  
 Series Code ↑ | Serial No. ↑

Filed: June 25, 1996  
 Title: SEQUENCING BY HYBRIDIZATION ... DEFINED  
 OLIGONUCLEOTIDES

Hon. Commissioner of Patents  
 and Trademarks  
 Washington, D.C. 20231

Group Art Unit	1807
Examiner:	Zitomer
Atty. Dkt.	237685   1004-B
M#	
(Our Deposit Account No. 03-3975)	
(Our Order No.	71180   237685
C#	
Date:	November 20, 1997
Client Ref	

Sir:

RESPONSE/AMENDMENT/LETTER

This is a response/amendment/letter in the above-identified application and includes the herewith attachment of same date and subject which is incorporated hereinto by reference and the signature below is treated as the signature to the attachment in absence of a signature thereto.

FEE REQUIREMENTS FOR CLAIMS AS AMENDED

1. "Small Entity" statement(s) filed  <input type="checkbox"/> previously <input type="checkbox"/> herewith (No.)	Claims remaining after amendment	Highest number previously paid for	Present Extra	Large/Small Entity	Additional Fee	Fee Code
2. Total Effective Claims	**minus	20	0	x \$22/\$11 =	+ 0	103/203
3. Independent Claims	***minus	3	0	x \$82/\$41 =	+ 0	102/202
4. If amendment enters proper multiple dependent claim(s) into this application for first time (leave blank if this is a reissue application) .....	add		+ \$270/\$135 =	+ 0		104/204
5. Original due Date: December 3, 1997	<input type="checkbox"/> NONE					
6. Petition is hereby made to extend the original due date to cover the date this response is filed for which the requisite fee is attached	(1 mo) (2 mos) (3 mos)	\$110/\$55 = \$400/\$200 = \$950/\$475 =	+ 0			115/215 116/216 117/217
7. Enter any previous extension fee paid since above original due date and subtract		-				
8.			Extension Fee Attached	+ 0		
9. If Terminal Disclaimer attached, add Rule 20(d) official fee .....		+ \$110/\$55 =	+ 0			148/248
10. If IDS attached requires Official Fee, ..... or if Rule 97(d) Petition .....	add add	+ \$240 = + \$130 =	+ 240 + 122			126 122
11. After-Final Request Fee per rules 129(a) and 17(r) .....		+ \$790/395 =	+ 0			146/246
12. No. of additional inventions for examination per Rule 129(b) .....		x \$790/395 ea =	+ 0			149/249
13. Petition fee for			+			
14.		TOTAL FEE ENCLOSED =	\$240			

15. \*If the entry in this space is less than entry in next space, the "Present Extra" result is "0".

16. \*\*If the "Highest number previously paid for" in this space is less than 20, write "20" in this space.

17. \*\*\*If the "Highest number previously paid for" in this space is less than 3, write "3" in this space.

**CHARGE STATEMENT:** The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (missing or insufficiencies only) now or hereafter relative to this application and the resulting Official Document under Rule 20, or credit any overpayment, to our Accounting/Order Nos. shown in the heading hereof, for which purpose a duplicate copy of this sheet is attached.

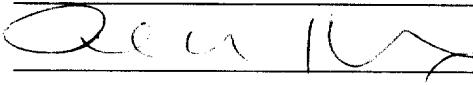
This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal sheet is filed.

Query: Is appeal deadline now? If so, file Notice of Appeals separately.

Cushman Darby & Cushman  
 Intellectual Property Group of  
 Pillsbury Madison & Sutro LLP

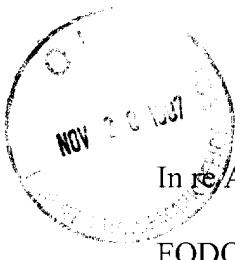
1100 New York Avenue, N.W.  
 Ninth Floor East Tower  
 Washington, D.C. 20005-3918  
 Tel: (202) 861-3000  
 PNK/mah

By: Atty: Paul N. Kokulis Reg. No. 16773

Sig: 

Fax: (202) 822-0944  
 Tel: (202) 861-3503

NOTE: File this cover sheet in duplicate with PTO receipt (CDC-103A) and attachments



13  
C  
w/ Sub Spec  
12/12/97

IN THE UNITED STATES PATENT OFFICE

In re Application of  
FODOR ET AL

Serial No.: 08/670,118

Group Art Unit: 1807

Filed: June 25, 1996

Examiner: Zitomer

Title: SEQUENCING BY HYBRIDIZATION OF A  
TARGET NUCLEIC ACID TO A MATRIX OF  
DEFINED OLIGONUCLEOTIDES

November 20, 1997

AMENDMENT

Honorable Commissioner of  
Patents and Trademarks  
Washington, D.C. 20231

Sir:

In response to the Office Action dated September 3, 1997, please amend the above application as follows:

IN THE FORMAL PAPERS

Change the title, wherever it appears, to read -- A METHOD OF DETECTING  
NUCLEIC ACIDS --.

IN THE ABSTRACT

Delete page 144 and insert the Abstract of the Disclosure which is attached hereto.

IN THE SPECIFICATION

Please replace the specification as filed with the attached specification.

Page 8, line 8, delete "Fig. 4 illustrates" and insert -- Figs. 4A-4M illustrate --.

IN THE CLAIMS

Cancel non-elected claims 1-10 and 37 without prejudice.

Claim 26, line 7, change "exposing" to -- contacting --; and change "to" to -- with --.

Amend claim 32 as follows:

32. (Amended) A method for [comparing] detecting nucleic acid sequences in two or more collections of nucleic acid molecules, the method comprising:

(a) providing [a plurality of target elements] an array of polynucleotides bound to a solid surface, each [target element] said polynucleotide comprising a determinable [target] nucleic acid;

(b) contacting the [target elements] array of polynucleotides with:

(i) a first collection of labelled nucleic acid comprising a sequence substantially complementary to a [target nucleotide sequence] nucleic acid of said array, and

(ii) at least a second collection of labelled nucleic acid comprising a substantially sequence complementary to a [target nucleotide sequence] nucleic acid of said array;

wherein the first and second labels are distinguishable from each other; and

(c) detecting [the binding] hybridization of the first and second labelled complementary nucleic acids to [the target] nucleic acids of said arrays.

C ) Amend claim 33 as follows:

2 ~~32~~. (Amended) The method of claim ~~32~~, wherein the solid support [is a plurality] comprises an array of beads.

Cancel claims 35 and 36 without prejudice.

Claim 38, line 9, delete "predominantly"; and before "nucleic", insert -- labeled --; and

line 11, before "nucleic", insert -- labeled --.

Claim 39, lines 2-3, delete "or polypeptide biopolymers"; and  
line 3, change "biopolymer" to -- polynucleotide --.

#### REMARKS

Reconsideration is requested.

The applicants express their appreciation to the Examiner for the courtesy and helpfulness extended to applicants' representatives, namely, Vern Norviel and Nancy DeSantis, patent counsel for applicants' assignee, and the undersigned. The application has been amended on the lines discussed at the interview and the applicants respectfully request favorable reconsideration on the basis of these amendments and the following remarks.

A new power of attorney is being filed herewith. Please note that all future correspondence should be directed to the undersigned as stated in the new power.

A substitute specification is attached hereto and its entry as a replacement for the original specification is requested. The undersigned confirms that no new matter has been added and that the attached includes changes requested in the preliminary amendment of June 25, 1996 (with a re-positioning of the heading "Background of the Invention" on page 1, the addition of the heading "Cross Reference to Related Applications" on page 1 of the specification and insertion of a reference to Serial No. 07/492,462 filed March 7, 1990 in the family background of the application).

The specification has been amended above to make reference to Figs. 4A-4M in the "Brief Description of the Drawings".

An Abstract on a separate sheet is submitted herewith.

The non-elected claims have been cancelled without prejudice to divisional filing thereon.

The claims have otherwise been amended, as discussed with the Examiner. Thus, claims 35 and 36 have been deleted without prejudice to later prosecution and other claims have been appropriately amended to deal with the Examiner's Section 112, 2<sup>nd</sup> ¶, rejection as set forth in Section (5) of the action. Accordingly, reconsideration and withdrawal of this rejection is requested.

The Examiner's Section 112 rejection as set out in Section 4 of the action was discussed with the Examiner at the interview and it is understood that the Examiner agrees that the rejection should be withdrawn. As explained to the Examiner, the applicants' disclosure is fully enabling for the claim scope regarding probe density, taking into account the knowledge of the art. It is possible with available equipment to provide probes in the high density called for by the claims as and when such density is required.

The Examiner is requested to reconsider the Section 103(a) rejection of claims 26-31 based on the reference combinations set forth in ¶¶s 6-8 of the action. The Fodor patent, which is an essential part of the Examiner's reference combinations, is not a proper reference herein, taking into account the essentially common ancestry of the present case and the Fodor patent. Accordingly, withdrawal of the rejection is requested.

Regarding the double-patenting rejection based on 5,445,934, the applicants are prepared to file a terminal disclaimer upon indication that the claims are otherwise allowable. Accordingly, reconsideration of the rejection is requested pending favorable indication with respect to all of the claims.

The indicated allowability of claims 32-34, 38 and 39 has been noted. The applicants' other claims are also thought to be allowable for the reasons noted.

The applicants attach hereto a PTO-1449 listing two further references (Church et al, Proc. Natl. Acad. Sci., 81:1991-1995 (April, 1984) and Ekins et al, Analytical Chimica Acta, 227, 1989), copies attached, for the Examiner's consideration. These references are not suggestive of the applicants' invention. However, the substance thereof was generally mentioned at the interview and applicants wish to have the same of record for the Examiner's consideration.

The drawing objections have been noted. New formal drawings, responsive to those objections, are being separately filed herewith.

FODOR ET AL  
Serial No. 08/670,118

Favorable action is requested.

Respectfully submitted,

CUSHMAN DARBY & CUSHMAN  
Intellectual Property Group of  
PILLSBURY MADISON & SUTRO, LLP



By \_\_\_\_\_  
Paul N. Kokulis  
Reg. No. 16773

PNK:mh  
1100 New York Avenue, N.W.  
9<sup>th</sup> Floor - East Tower  
Washington, D.C. 20005-3918  
Phone: (202) 861-3503